

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1 Claim 1 (original): A system comprising memory including a computer code
2 product for training computing devices for classification or identification purposes for one or
3 more substances capable of producing olfactory information, the memory comprising:
4 a code directed to providing at least a first data from a first substance and a
5 second data from a second substance to a computing device, the data being comprised of a
6 plurality of characteristics to identify the substance;
7 a code directed to normalizing at least one of the characteristics for each of the
8 first data and the second data;
9 a code directed to correcting at least one of the characteristics for each of the first
10 data and the second data;
11 a code directed to processing one or more of the plurality of characteristics for
12 each of the first data and the second data in the computing device using pattern recognition to
13 form descriptors to identify the first substance or the second substance; and
14 a code directed to storing the set of descriptors into a memory device coupled to
15 the computing device, the set of descriptions being for analysis purposes of one or a plurality of
16 substances.

1 Claim 2 (original): The system of claim 1 wherein the characteristics can be
2 selected from olfactory information, temperature, color, and humidity.

1 Claim 3 (original): The system of claim 1 wherein the pattern recognition is a
2 Fisher Linear Discriminant Analysis.

1 Claim 4 (original): The system of claim 1 wherein the first data and the second
2 can be selected from a transient stream of data or from a static source of data.

1 Claim 5 (original): The system of claim 1 wherein the steps are performed
2 continuously in the computing device.

1 Claim 6 (original): The system of claim 1 wherein the data are captured from an
2 array of olfactory sensors.

1 Claim 7 (original): The system of claim 6 wherein the olfactory sensors are
2 comprised of a polymer component.

1 Claim 8 (original): The system of claim 1 wherein the first data and the second
2 data are provided through a worldwide network of computers, the worldwide network of
3 computers comprising the Internet.

1 Claim 9 (original): The system of claim 1 wherein the first data and the second
2 data are captured from a first sensor and a second sensor, respectively, disposed in an array.

1 Claim 10 (original): The system of claim 1 wherein the first data and the second
2 data are captured from a first sensor and a second sensor, respectively, disposed in an array and
3 transported through the Internet.

1 Claim 11 (original): A system including memory and computer codes for
2 preprocessing information for identification or classification purposes, the system comprising:
3 a code directed to acquiring a voltage reading from a sensor of a sensing device,
4 the sensor being one of a plurality of sensors that are disposed in an array;
5 a code directed to determining if the voltage is outside a baseline voltage of a
6 predetermined range; and

7 a code directed to rejecting the sensor of the sensing device for use in acquiring
8 sensory information, if the voltage is outside the predetermined range.

1 Claim 12 (original): The system of claim 11 further comprising a code directed
2 to repeating steps of acquiring and determining for any other sensors in the plurality of sensors in
3 the array to detect a faulty sensor that is outside the predetermined range.

1 Claim 13 (original): The system of claim 11 wherein each of the sensors in the
2 array acquires a respective voltage reading simultaneously.

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1 Claim 14 (original): The system of claim 11 further comprising a code directed
2 to exposing at least one of the sensors to a sample and acquiring a sample voltage from the
3 sample.

1 Claim 15 (original): The system of claim 11 further comprising a code directed
2 to exposing at least one of the sensors to a sample and acquiring a sample voltage from the
3 sample, if the sample voltage is outside a predetermined sample voltage range, reject the one
4 exposed sensor.

1 Claim 16 (original): The system of claim 11 wherein the plurality of sensors
2 comprise an olfactory sensor, the olfactory sensor being comprised of a polymer component.

1 Claim 17 (currently amended): A system for classifying or identifying one or
2 more substances capable of producing olfactory information, ~~the method~~ comprising:

3 a process manager;

4 an input module coupled to the process manager for providing at least a first data
5 from a first substance and a second data from a second substance to a computing device, the data
6 being comprised of a plurality of characteristics to identify the substance;

7 a normalizing module coupled to the process manager for normalizing at least one
8 of the characteristics for each of the first data and the second data;

9 a patterning recognition module coupled to the process manager for processing
10 one or more of the plurality of characteristics for each of the first data and the second data in the

11 computing device using pattern recognition to form descriptors to identify the first substance or
12 the second substance; and
13 an output module coupled to the main process manager for storing the set of
14 descriptors into a memory device coupled to the computing device, the set of descriptions being
15 for analysis purposes of one or a plurality of substances.

1 Claim 18 (original): The system of claim 17 wherein the characteristics can be
2 selected from olfactory information, temperature, color, and humidity.

1 Claim 19 (original): The system of claim 17 wherein the pattern recognition is a
2 Fisher Linear Discriminant Analysis.

1 Claim 20 (original): The system of claim 17 wherein the first data and the
2 second can be selected from a transient stream of data or from a static source of data.

1 Claim 21 (original): The system of claim 17 wherein the steps are performed
2 continuously in the computing device.

1 Claim 22 (original): The system of claim 17 wherein the data are captured from
2 an array of olfactory sensors.

1 Claim 23 (original): The system of claim 22 wherein the olfactory sensors are
2 comprised of a polymer component.

1 Claim 24 (original): The system of claim 17 wherein the system is provided in a
2 computer.

1 Claim 25 (original): The system of claim 17 wherein the pattern recognition
2 module comprises a plurality of pattern recognition algorithms.

1 Claim 26 (original): The system of claim 17 further comprising a data storage
2 device coupled to the main process manager.

1 Claim 27 (original): The system of claim 17 further comprising a network
2 module coupled to the main process manager, the network module being coupled to a worldwide
3 network of computers.

1 Claim 28 (original): The system of claim 17 further comprising a network
2 module coupled to the main process manager, the network module being coupled to a world wide
3 network of computers, the input module being coupled to a sensor device comprising a plurality
4 of sensors through the world wide network of computers.

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1 Claim 29 (original): A method for training computing devices for classification
2 or identification purposes for one or more substances capable of producing olfactory
3 information, the method comprising:

4 providing at least a first data from a first substance and a second data from a
5 second substance to a computing device, the data being comprised of a plurality of
6 characteristics to identify the substance;

7 normalizing at least one of the characteristics for each of the first data and the
8 second data;

9 correcting at least one of the characteristics for each of the first data and the
10 second data;

11 processing one or more of the plurality of characteristics for each of the first data
12 and the second data in the computing device using pattern recognition to form descriptors to
13 identify the first substance or the second substance; and

14 storing the set of descriptors into a memory device coupled to the computing
15 device, the set of descriptions being for analysis purposes of one or a plurality of substances.

1 Claim 30 (original): The method of claim 29 wherein the characteristics can be
2 selected from olfactory information, temperature, color, and humidity.

1 Claim 31 (original): The method of claim 29 wherein the pattern recognition is a
2 Fisher Linear Discriminant Analysis.

1 Claim 32 (original): The method of claim 29 wherein the first data and the
2 second can be selected from a transient stream of data or from a static source of data.

1 Claim 33 (original): The method of claim 29 wherein the steps are performed
2 continuously in the computing device.

1 Claim 34 (original): The method of claim 29 wherein the data are captured from
2 an array of olfactory sensors.

1 Claim 35 (original): The method of claim 34 wherein the olfactory sensors are
2 comprised of a polymer component.

1 Claim 36 (original): The method of claim 29 wherein the first data and the
2 second data are provided through a worldwide network of computers, the worldwide network of
3 computers comprising the Internet.

1 Claim 37 (original): The method of claim 29 wherein the first data and the
2 second data are captured from a first sensor and a second sensor, respectively, disposed in an
3 array.

1 Claim 38 (original): The method of claim 29 wherein the first data and the
2 second data are captured from a first sensor and a second sensor, respectively, disposed in an
3 array and transported through the Internet.

1 Claim 39 (original): A method for teaching a system used for analyzing
2 multidimensional information for one or more substances, the method comprising:

3 providing a plurality of different substances, each of the different substances
4 being defined by a plurality of characteristics to identify any one of the substances from the other
5 substances, the plurality of characteristics being provided in electronic form;

6 providing a plurality of processing methods, each of the processing methods being
7 capable of processing each of the plurality of characteristics to provide an electronic fingerprint
8 for each of the substances;

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9 processing each of the plurality of characteristics for each of the substances
10 through a first processing method from the plurality of processing methods to determine a
11 relationship between each of the substances through the plurality of characteristics of each of the
12 substances from the first processing method; processing each of the plurality of characteristics
13 for each of the substances through a second processing method to determine a relationship
14 between each of the substances through the plurality of characteristics for each of the substances
15 from the second processing method; and processing each of the plurality of characteristics for
16 each of the substances through an nth processing method to determine a relationship between
17 each of the substances through the plurality of characteristics from each of the substances from
18 the nth processing method;

19 comparing the relationship from the first processing method to the relationship
20 from the second processing method to the relationship from the nth processing method to find
21 the processing method that yields the largest signal to noise ratio to identify each of the
22 substances; and

23 selecting the processing method that yielded the largest signal to noise ratio,
24 whereupon the relationships from the selected processing method provide an improved ability to
25 distinguish between each of the substances using the selected processing method.

1 Claim 40 (original): The method of claim 39 wherein the plurality of processing
2 methods can comprise a method selected from PCA, HCA, KNN CV KNN Prd, SIMCA CV,
3 SIMCA Prd, Canon Prd, and Fisher CV.

1 Claim 41 (original): The method of claim 39 wherein the characteristics can be
2 selected from olfactory information, temperature, color, and humidity.

1 Claim 42 (original): A method for preprocessing information for identification or
2 classification purposes, the method comprising:

3 acquiring a voltage reading from a sensor of a sensing device, the sensor being
4 one of a plurality of sensors that are disposed in an array;

5 determining if the voltage is outside of a baseline voltages of a predetermined
6 range; and

7 if the voltage is outside of the predetermined range, rejecting the sensor of the
8 sensing device for use in acquiring sensory information.

1 Claim 43 (original): The method of claim 42 further comprising repeating steps
2 of acquiring and determining for any other sensors in the plurality of sensors in the array to
3 detect for a faulty sensor that is outside the predetermined range.

1 Claim 44 (original): The method of claim 42 where each of the sensors in the
2 array acquires a respective voltage reading simultaneously.

1 Claim 45 (original): The method of claim 42 further comprising exposing at least
2 one of the sensors to a sample and acquiring a sample voltage from the sample.

1 Claim 46 (original): The method of claim 42 further comprising exposing at least
2 one of the sensors to a sample and acquiring a sample voltage from the sample, if the sample
3 voltage is outside of a predetermined sample voltage range, reject the one exposed sensor.

1 Claim 47 (original): The method of claim 42 wherein the plurality of sensors
2 comprise an olfactory sensor, the olfactory sensor being comprised of a polymer component.

1 Claim 48 (original): A system for identifying a substance capable of producing
2 olfactory information, the system comprising:
3 a user interface apparatus comprising a display, a graphical user interface, and a
4 central processor; and
5 a process manager operably coupled to the display through the central processor,
6 wherein the graphical user interface is capable of imputing an information object from a client to
7 manipulate olfaction data and displaying the identity of the substance received from a server.

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1 Claim 49 (original): The system of claim 48, wherein the information object is
2 selected from the group consisting of digital filtering, preprocessing, pattern recognition, mean
3 centering, autoscaling and cross validation.

1 Claim 50 (original): The system of claim 49, wherein pattern recognition is
2 selected from the group consisting of PCA, HCA, KNN CV KNN Prd, SIMCA CV, SIMCA Prd,
3 Canon Prd, and Fisher CV.

1 Claim 51 (new): The method of claim 29 wherein the data from the first
2 substance and the second substance is data obtained for shipping container monitoring.

1 Claim 52 (new): The method of claim 29 wherein the data from the first
2 substance and the second substance is data obtained for perimeter monitoring.

1 Claim 53 (new): The method of claim 29 wherein the data from the first
2 substance and the second substance is data obtained for explosive monitoring.

1 Claim 54 (new): The method of claim 29 wherein the data from the first
2 substance and the second substance is data obtained for hazardous spill monitoring.

1 Claim 55 (new): The method of claim 29 wherein the data from the first
2 substance and the second substance is data obtained for radiation monitoring.
